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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/972,576	10/05/2001	Petrus Hubertus Cornelis Magnee	NL 000549	4658

24737 7590 05/16/2003

PHILIPS ELECTRONICS NORTH AMERICAN CORP  
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TARRYTOWN, NY 10591

EXAMINER

IM, JUNGHWA M

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/972,576

Applicant(s)

MAGNEE ET AL.

Examiner

Junghwa M. Im

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/27/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,9 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 27 February 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5 and 9-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

First, Application does not disclose any supports for correlation between the areas of the diffusion regions and the corresponding breakdown voltages.

Second, Application does not disclose that the first diffusion region 26 is larger than the second diffusion region 45. In fact, Application discloses the opposite throughout the specification, especially in Figures 3i and 4b and for example a recitation starting on page 3, line 13.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1-4 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Zambrano (U.S. Pat. No. 5,300,451).

Regarding claim 1, insofar as understood, Zambrano shows in Fig. 1, a semiconductor comprising; a substrate layer N (second layer from the bottom) with an upper surface and a lower surface, the substrate layer being a first conductivity N; a first buried layer  $N^+$  (left side portion of the bottom layer  $N^+$ ) in the substrate, extending along said lower surface below a first portion of said upper surface of said substrate layer, and a second buried layer  $N^+$  (right side portion of the bottom layer  $N^+$ ) in the substrate, extending along said lower surface below a second portion of said upper surface of said substrate layer; a first diffusion region (region designated with  $P^+$  and B) in said first portion of said substrate layer, being of a second conductivity type  $P^+$  opposed to said first conductivity type  $N^+$  and having a first areal size for defining a first breakdown voltage; a second diffusion region (region surrounded by P1 and P2) in said second portion of said substrate layer, being of a second conductivity type  $P^+$  and having a second areal size for defining a second breakdown voltage; and said first areal size being smaller than said second areal size such that said first breakdown voltage is larger than said second breakdown voltage (col.3, lines 10-25).

Regarding claim 2, Zambrano shows in Fig. 1, the first diffusion region is a base B of a bipolar transistor and the first buried layer is a collector C of said bipolar transistor.

Regarding claims 3 and 9, Zambrano shows in Fig. 1, the second diffusion region is an anode of a pn protection diode and the second buried layer is a cathode of the pn protection diode (col.3, lines 2-25).

Also see Fig. 2 for the circuit equivalent of Fig. 1.

Regarding claim 4, Zambrano shows in Fig. 1, the first buried layer is connected to said second buried layer, and the first and second buried layers are manufactured in the same step.

***Claim Rejections - 35 USC § 102/103***

Claims 5 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zambrano.

Regarding claims 5 and 10, Zambrano shows in Fig. 21, the semiconductor arrangement comprising: a channel stopper region 22 in said second portion of said substrate layer; the channel stopper region being of said first conductivity type N<sup>-</sup>, for electrically isolating said second portion of said substrate layer within the substrate, wherein said channel stopper regions between said second diffusion layer 21 and said second buried layer 24.

The channel stopper region of Zambrano's device inherently or obviously reduces the second breakdown voltage since the channel stopper region of Zambrano is formed of the same conductivity to the pending claims in the same region as recited

***Response to Arguments***

Applicant's arguments filed on 27 February 2003 have been fully considered but they are not persuasive. The rejection stands, modified only to accommodate the amendments made to the claims by Applicant. New rejections are made in response to the amended claims.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (703) 305-3998. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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jmi

May 14, 2003

Steven Loh